

We claim:

1. An adjustable height apparatus, for supporting a horizontal projector, said apparatus comprising:

5 a shield assembly, assembled inside said projector;

a supporting means, for supporting said projector, assembled within said shield assembly;

10 a compression link, assembled within said shield assembly, the first end of said compression link extending toward the outside of said shield assembly, for receiving an external force exerted on a button of said adjustable height apparatus; and

a fixture means, assembled within said shield assembly, for connecting said the second end of said compression link to adjust the height position of said supporting means.

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2. The apparatus as recited in claim 1, wherein said supporting means further comprises:

a bottom base;

a first elastic component; and

20 a sleeve, said sleeve comprising a height-positioning component, wherein said bottom base located outside said shield assembly and connecting with said sleeve for directly supporting said projector, said first elastic component located within said sleeve and having sufficiently close contact with both the first end of said sleeve and

the top wall of said shield assembly, and said height-positioning component, in a longitudinal direction of said sleeve, comprising a plurality of teeth for positioning the height position of said adjustable height apparatus.

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3. The apparatus as recited in claim 2, wherein said fixture means is a lever, pivoted inside said shield assembly between said compression link and said supporting means, further comprising:

a second elastic component; and
a detent,

wherein the first end of said lever connecting with said second elastic component and the elasticity of said second elastic component having sufficiently close contact with both the first end of said lever and the second end of said compression link, said detent at the second end of said lever utilizing to match with said teeth of said height-positioning component and being disengaged with said teeth of said height-positioning component when an external force applied to said compression link, whereby said sleeve extending toward the outside of said shield assembly by the elasticity of said first elastic component for adjusting the height of said bottom base of said supporting means.

4. The apparatus as recited in claim 3, wherein said first and said second elastic components are springs.

5. The apparatus as recited in claim 2, wherein said fixture means further comprises:

a second elastic component;

5 a detent; and

an inclined plane,

wherein said detent can be matched with said teeth of said height-positioning component by the elasticity of said second elastic component, the second end of said compression link having contact with said inclined plane to disengage said detent from said teeth of said height-positioning component when the first end of said compression link receives an external force to perform a vertical displacement, whereby said sleeve extending toward the outside of said shield assembly by the elasticity of said first elastic component for adjusting the height of said bottom base of said supporting means.

6. The apparatus as recited in claim 5, wherein said detent further comprises a two-teeth structure for matching with said teeth of said height-positioning component.

7. The apparatus as recited in claim 5, wherein materials of said detent and said inclined plane of said fixture means comprises nylon and 15% glass fiber.

8. The apparatus as recited in claim 5, wherein the second end of said compression link further comprises a curved surface for contacting said inclined plane.

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9. The apparatus as recited in claim 5, wherein said shield assembly further comprises two guides for tracking said fixture means to shift transversely.

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10. The apparatus as recited in claim 9, wherein said fixture means further comprises two round bulges for fitting with said guides to shift transversely.

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11. The apparatus as recited in claim 5, further comprises a third elastic component located between the first end of said compression link and said shield assembly to cooperate with said second elastic component.

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12. The apparatus as recited in claim 11, wherein said first, said second and said third elastic components are springs.

13. The apparatus as recited in claim 1, wherein the first end of said compression link further comprises an L-type lever connecting with said button.

14. An adjustable height apparatus, applied to a horizontal projector, of said apparatus comprising:

a shield assembly, assembled inside said projector, said shield assembly comprising:

- 5 a shell;
- a first fixed base; and
- a second fixed base, said first base and said second base located in the left and the right sides of said shell separately;

a supporting means, for supporting said projector, assembled within said first fixed base, said supporting component comprising:

- 10 a bottom base;
- a first elastic component; and
- a sleeve, said sleeve comprising:
 - a chamber;
 - 15 a height-positioning component, said bottom base located outside said shell and connecting with said sleeve, the first end of said sleeve being open and communicating with said chamber, said first elastic component located within said chamber and the elasticity of said first elastic component being sufficient to have
 - 20 close contact between the first end of said sleeve and the top wall of said shell, the second end of said sleeve connecting with said bottom base, and said height-positioning component, with an axial direction of said sleeve, comprising a plurality of teeth;
 - a compression link, assembled within said second fixed base and the

first end of said compression link extending toward the outside of said shell, for receiving an external force while supporting said adjustable height apparatus; and

5 a lever, pivoted inside said shell, between said compression link and said supporting means, comprising:

a second elastic component; and

10 a detent, the first end of said lever connected with said second elastic component and the elasticity of said second elastic component being sufficient to have close contact between the first end of said lever and the second end of said compression link, said detent at the second end of said lever for engagement with said teeth of said height-positioning component and departing from contact with said height-positioning component when an external force applied to said compression link, said sleeve extending toward the outside of said shell by the elasticity of said first elastic component for adjusting the height of said bottom base of said supporting means.

15 15. The apparatus as recited in claim 14, wherein said first and said second elastic components are springs.

16. The apparatus as recited in claim 14, wherein the first end of said compression link further comprises an L-type lever for connecting with a button, for adjusting the height, of the top wall of said projector.

17. An adjustable height apparatus for supporting a horizontal projector, comprising a shield assembly, a supporting means, a compression link and a fixture means, wherein said shield assembly assembled inside said projector, said supporting means, assembled within said shield assembly, comprising a bottom base, a first elastic component and a height-positioning component with a plurality of teeth, utilized to support said projector, said compression link, assembled within said shield assembly, the first end of said compression link extending toward the outside of said shield assembly, said fixture means, comprising a second elastic component, a detent and an inclined plane, characterized in that

said detent, comprising a two-teeth structure, being matched with said teeth of said height-positioning component by the elasticity of said second elastic component, the second end of said compression link having contact with said inclined plane to separate said two-teeth structure of said detent from said teeth of said height-positioning component when the first end of said compression link receives an external force to perform a vertical displacement, whereby said supporting means extending toward the outside of said shield assembly by the elasticity of said first elastic component for adjusting the height of said bottom base of said supporting means.

18. The apparatus as recited in claim 17, wherein materials of said detent and said inclined plane of said fixture means comprises nylon and 15% glass fiber.

19. The apparatus as recited in claim 17, wherein the second end of said compression link further comprises a curved surface for contacting said inclined plane.

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20. The apparatus as recited in claim 17, wherein said shield assembly further comprises two guides for tracking said fixture means to shift transversely.

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21. The apparatus as recited in claim 20, wherein said fixture means further comprises two round bulges for fitting with said guides to shift transversely.

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22. The apparatus as recited in claim 17, wherein said adjustable height apparatus further comprises a third elastic component located between the first end of said compression link and said shield assembly to cooperate with said second elastic component.

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23. The apparatus as recited in claim 22, wherein said first, said second and said third elastic components are springs.

24. The apparatus as recited in claim 17, wherein the first end of said compression link further comprises an L-type lever connecting with said button.